Operators and Matrices
Volume 16, Number 1 (2022), 151–169 doi:10.7153/oam-2022-16-14

DISJOINT HYPERCYCLIC POWERS OF WEIGHTED TRANSLATIONS ON LOCALLY COMPACT HAUSDORFF SPACES

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Abstract. In this article, we study the disjoint hypercyclic powers of weighted translations on the weighted space $L^p(G,\omega)$ in two cases, where G is a locally compact second countable Hausdorff space with a positive regular Borel measure and ω is a weight on G. In addition, some examples are given to illustrate our results.

Mathematics subject classification (2020): 47A16, 47B38, 46E15.
Keywords and phrases: Disjoint hypercyclic, weighted translation, locally compact Hausdorff space.

REFERENCES

[1] S. I. ANSARI, *Existence of hypercyclic operators on topological vector spaces*, J. Funct. Anal. **148** (2) (1997), 384–390.
[2] F. BAYART AND É. MATHERON, *Dynamics of Linear Operators*, Cambridge University Press, Cambridge, 2009.
[3] L. BERNAL-GONZÁLEZ, *Disjoint hypercyclic operators*, Studia Math. **182** (2) (2007), 113–131.
[4] J. BÈS AND Ö. MARTIN, *Compositional disjoint hypercyclicity equals disjoint supercyclicity*, Houston J. Math. **38** (4) (2012), 1149–1163.
[5] J. BÈS, Ö. MARTIN AND R. SANDERS, *Weighted shifts and disjoint hypercyclicity*, J. Oper. Theory, **72** (1) (2014), 15–40.
[6] J. BÈS, Ö. MARTIN AND A. PERIS, *Disjoint hypercyclic linear fractional composition operators*, J. Math. Anal. Appl. **381** (2011), 843–856.
[7] J. BÈS, Ö. MARTIN, A. PERIS AND S. SHKARIN, *Disjoint mixing operators*, J. Funct. Anal. **263** (5) (2012), 1283–1322.
[8] J. BÈS AND A. PERIS, *Disjointness in hypercyclicity*, J. Math. Anal. Appl. **336** (2007), 297–315.
[9] G. D. BIRKHOFF, *Surface transformations and their dynamical applications*, Acta Math. **43** (1) (1922), 1–119.
[10] C. C. CHEN AND C. H. CHU, *Hypercyclicity of weighted convolution operators on homogeneous spaces*, Proc. Amer. Math. Soc. **137** (2009), 2709–2718.
[11] C. C. CHEN AND C. H. CHU, *Hypercyclic weighted translations on groups*, Proc. Amer. Math. Soc. **139** (2011), 2839–2846.
[12] C. C. CHEN, *Hypercyclic weighted translations generated by non-torsion elements*, Arch. Math. **101** (2013), 135–141.
[13] C. C. CHEN, *Disjoint hypercyclic weighted translations on groups*, Banach J. Math. Anal. **11** (3) (2017), 459–476.
[14] C. DONALD L, *Measure Theory*, Birkhäuser Boston, 1980.
[15] K.-G. GROSSE-ERDMANN AND A. PERIS MANGUILLOT, *Linear Chaos*, Universitext, Springer, New York, 2011.
[16] S. A. HAN AND Y. X. LIANG, *Disjoint hypercyclic weighted translations generated by aperiodic elements*, Collect. Math. **67** (3) (2016), 347–356.
[17] C. KITAI, *Invariant closed sets for linear operators*, PhD thesis, Univ. of Toronto, 1982.
[18] Ö. MARTIN, *Disjoint hypercyclic and supercyclic composition operators*, PhD thesis, Bowling Green State University, 2010.
[19] H. SALAS, *Hypercyclic weighted shifts*, Trans. Amer. Math. Soc. **347** (1) (1995), 993–1004.

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Paper OaM-16-14

[20] H. SALAS, *Dual disjoint hypercyclic weighted shifts*, J. Math. Anal. Appl. **374** (1) (2011), 106–117.
[21] R. SANDERS AND S. SHKARIN, *Existence of disjoint weakly mixing operators that fail to satisfy the Disjoint Hypercyclicity Criterion*, J. Math. Anal. Appl. **417** (2) (2014), 834–855.
[22] S. SHKARIN, *A short proof of existence of disjoint hypercyclic operators*, J. Math. Anal. Appl. **367** (2) (2010), 713–715.
[23] Y. WANG AND Z. H. ZHOU, *Disjoint hypercyclic weighted pseudo-shifts on Banach sequence spaces*, Collectanea Mathematica, **69** (3) (2018), 437–449.
[24] L. ZHANG, H. Q. LU, X. M. FU AND Z. H. ZHOU, *Disjoint hypercyclic powers of weighted translations on groups*, Czechoslovak Mathematical Journal, **67** (3) (2017), 839–853.